ABSTRACT OF THE DISCLOSURE

A method of simply and quickly determining α-ray releasing nuclides having long half-life without carrying out a chemical separation is provided.

By inputting a data of pulses incident to an α-ray detector in a computer, obtaining time distribution of the incident pulses by using a very short time measuring timer and plotting, and fitting the linear originated in a random event corresponding to the background and the non-linear originated in the correlated events of parent nuclides-progenies by using the least squares method, the whole generating probability P (t) from the parent nuclide to the progeny thereof is obtained. By subtracting the random events portion from the P(t), the correlated events portion is extracted. The radioactivity per unit can be obtained by dividing the extracted correlated events portion by the measured time, the amount of the supplied sample and the counting efficiency. Also, by determining nuclides unnecessary for the measurement by this method and removing the determined nuclides from the energy spectra of objective nuclides to thereby lower the background, the objective nuclides can be determined by using pulse-height discrimination.